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DATE: 3 March 1992

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TO: Pat Young and Norman Lovelace OFFICE:

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From: Steve Costa

Office: SFO

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REMARKS:

Pat,

FYI: material sent to Doug Liden re: NPDES Draft Permits (preliminary)
Please copy Norman Lovelace. Give me a call if you have any questions

Thanks, Steve

Doug,

Attached are comments on the preliminary draft of the canneries NPDES
permits. Please give me a call with any questions and to set up a
meeting, if you think it is necessary.

Regards,

Steve

Date Fax Received: _____
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MEMORANDUM

CH2M HILL

TO: Doug Liden/USEPA

COPIES: Norman Wei/StarKist Seafood
James Cox/Van Camp Seafood
Norman Lovelace/USEPA
Pat Young/USEPA
Sheila Wiegman/ASEPA

FROM: Steve Costa/CH2M HILL/SFO

DATE: 3 March 1992

SUBJECT: Comments on Preliminary Draft NPDES Permits:
Joint Cannery Outfall, Pago Pago Harbor, American Samoa

PROJECT: PDX30702.PA.NP

A preliminary review of the draft NPDES permits for both canneries indicates that a number of items include areas for further discussion with USEPA and ASEPA. The list below does not include the flow limitation on Samoa Packing which is being addressed separately. I am available for a meeting with you, prior to the public release of the draft permit, to discuss any or all of the issues discussed below.

The issues involving effluent limits and monitoring have been discussed, or indicated as areas of concern, prior to the review of this draft. Some of the language in the draft permit, particularly under Discharge Specifications (Section B), is of extreme concern and represent major problems with the draft permit. If the permit language is left as is the canneries would be in violation of permit conditions at the time the permit becomes effective. The specification of end of pipe limitations does not consider the existence of, or rationale for, a zone of mixing.

The number and complexity of the studies requested was surprising and appears onerous and costly. As environmental consultants for the canneries, we cannot justify the necessity for all of the studies proposed in the preliminary draft permit. These studies are discussed below in the list of issues we believe require further consideration.

A. EFFLUENT LIMITS AND MONITORING REQUIREMENTS

[1] Monitoring for TN and TP is described as a choice of two options:

- monitoring twice weekly on production days, or
- if the canneries wish to monitor on a non-production day, then monitoring will be done for six consecutive days following the non-production day.

Regardless of the option used all samples taken during the month will be used in calculating the "monthly average".

The first of the monitoring schedules (twice/week) provides a high (conservative) estimate of monthly average loading since the calculated average will not account for reduced loadings on non-productions days.

The second of the monitoring options provides for accounting for the reduced loadings on non-production days. The rationale behind this approach recognizes the slow response time Pago Pago Harbor and the fact that variability in the overall harbor concentrations of TN and TP will not be measurably influenced by daily variations in loading. Therefore reduced loadings on non-production days can be balanced with increases in loadings on production days without violations of water quality standards. We agree with the rationale for this option. However, the manner in which it is presented requires 7 days of monitoring each week if non-production days are to be accounted for. This would effectively require continuous monitoring, both non-production and production days, to account for any non-production day loadings.

We feel that it is not necessary to require what is effectively continuous monitoring (every day of the month) in order to account for non-production days. There are a variety of alternate monitoring approaches that could be used. We recommend either of the following to reduce the number of days of required sampling:

- Sample twice per week during production days and on every non-production day that the canneries desire to count in the

monthly average. Use a weighted average to calculate monthly loadings.

- Sample approximately 40 percent of the non-production days (to match the twice per week production day sampling frequency) and use a weighted average to calculate monthly loadings.

We realize the monitoring schedule proposed by EPA is a conservative approach and provides for the use of non-production day monitoring data under the most conservative conditions. The approach appears to be one of not allowing any low values to be averaged into the loading calculation unless all days are accounted for. This is apparently done to insure that there is no possibility of calculating a number that is not equal to or higher than the actual average. This element of conservatism is unwarranted given the conservative assumptions that have been used during the development of the zone of mixing and the conservative nature of the loading limitations proposed in the draft (preliminary) permit compared to the predictions of the models used. It is not necessary to place a third level of conservatism on top of the already conservative approach.

The existing data base provides a good characterization of the distribution of production day loadings. The distribution approximates a random distribution except near the high end. Therefore, the use of either of the two sampling schemes suggested above is highly unlikely to result in an underestimate of monthly average loading for any given month, and will not result in underestimates over periods of a few months or more.

- [2] Ammonia limits are based on two samples (one from each cannery). The limit proposed is prudent (based on a factor of approximately two higher than measured for a 30 second maximum exposure time for entrained organisms) for preliminary purposes. However, the actual concentration should be monitored and reported for a period of time (1 year or more) prior to the setting of discharge limits. We also feel that additional information on the behavior of ammonia, in the type of effluent discharged and in a marine receiving water environment, would result in a lower level of concern with potential toxic effects.

- [3] **Total Residual Chlorine (TRC):** The zone of initial dilution (ZID) should provide for TRC limitations. TRC limitations should be applied at the edge of the ZID rather than the end of the pipe. Chlorine is required in processing and it is not feasible to modify the process. Nor is it feasible to routinely dechlorinate in a setting such as American Samoa where shipping, storage, and technical capabilities are not always adequate.

The previous discussions with USEPA and ASEPA concerning a ZID for un-ionized ammonia should apply to TRC as well (see meeting notes for 26 Dec 1991 meeting). The American Samoa Water Quality Standards allow a zone of initial dilution and zone of mixing. The initial dilution process is very rapid and high dilutions are achieved and exposure times to entrained organisms can be maintained on the order of seconds to a few minutes with sufficient dilution to achieve concentrations below defined chronic levels.

A major additional problem with TRC is the difficulty of measuring TRC at low levels. This problem is compounded by the turbidity, high organic content, and (for StarKist) the high sea water content of the effluent. Discussions with the leading instrument manufacturer (HACH INSTRUMENTS) indicates that sophisticated and carefully done laboratory techniques will be required. There appears to be no instrument that will reliably or accurately measure the levels of TRC in the effluent.

Additional information on the behavior of residual chlorine in the high organic content effluent discharged and in a marine receiving water environment is needed to adequately assess the potential levels of TRC at the end of the pipe and the edge of a ZID. Such information would probably result in a lower level of concern with potential toxic effects.

B. DISCHARGE SPECIFICATIONS

- [1] **Dissolved oxygen** limits at the end of the pipe is a serious problem. This is an end of pipe requirement as it is written. We have no measurements of DO at end of pipe with the new outfall but do know that this condition will not be met at the end of pipe. The high oxygen demand and longer travel time through the pipe, particularly under low effluent flows, should be considered. We feel that the DO requirement

must account for the establishment of the mixing zone. This was recognized in the preparation of the application for the zone of mixing (see Table 3 in the application). The establishment and approval of a zone of mixing has been the basis for the construction of the extended joint cannery outfall. The application of end of pipe limitations of this type is counter to the conditions and understanding which form the basis from which the joint cannery outfall project has been undertaken.

- [2] Similar comments for turbidity as for DO above.
- [3] Toxicity is also written as an end of pipe requirement. We feel that the requirement should be at the edge of the zone of mixing or a ZID established for specified constituents of concern (the ZID may need to be specified).

C. TOXICITY

We have some questions concerning the schedule, holding times for effluent if the tests are done off island, whether or not they can be done on island, and how representative the tests can be in either case. In particular, the problem of holding time of effluent samples needs to be addressed. Are constituents of concern stable, and is the generation of other constituents during shipping effluent samples a potential problem?

We understand the reasons for the tests but believe that more information and better defined procedures are required prior to starting the tests. Therefore, we would recommend an initial period of development of site specific objectives, protocols, and procedures. An assessment of the usefulness of the tests and addressing whether they can be conducted in a meaningful fashion is indicated. The first test in 90 days appears unrealistic and we urge a development period prior to initiating the testing.

D. RECEIVING WATER QUALITY MONITORING PROGRAM

- [1] Additional stations around the zone of mixing zone are reasonable but the elimination of some of the other stations should be considered. Since the discharge will be moved out of the inner harbor, the spacial detail in the inner harbor is not necessary and the number of stations in

the inner harbor can be reduced. Stations 12, 11a, 9a, 8, and 8a appear either redundant with the new stations or are not required to assess impacts of the new discharge location.

- [2] Measuring un-ionized ammonia is indirect (measure ammonia and calculate un-ionized ammonia). As far as I know, there are no well recognized equilibrium constants for sea water.

E. DYE OR TRACER STUDIES

Quarterly studies are not needed. One study to calibrate and verify models and to document diffuser performance is sufficient. At most two studies at the two different oceanographic conditions should be considered. However, it is our opinion that the additional information gathered during a second test would be of marginal value.

We perform dye studies routinely for a wide variety of discharges, they are costly and labor intensive. A single study is generally all that is required. Such studies are almost always used for verification and more than one is redundant and is not necessary.

F. SEDIMENT MONITORING

The sediment monitoring should be combined with the water quality monitoring and samples collected at the same time as the water samples during the selected month of the year. Attention needs to be given to the analysis techniques and the conclusions drawn from the data. For example: measurement of total phosphorous in sediments will include both organic and inorganic sources and have little relationship to the information desired.

G. EUTROPHICATION STUDY

We feel that the eutrophication study may not be practical and it may not be technically or economically feasible to conduct such a study to the level required to provide direct and meaningful information about the impact of the cannery discharges. We feel that the monitoring program addresses the same questions and provides direct information about the impacts of the cannery discharges.

H. CORAL REEF SURVEY

We see two problems with the coral reef survey as described:

- The time frame requested (annual) is probably not necessary and changes may not be readily observable with respect to the influences of the cannery discharge on that time scale.
- The number of transects is too limited to attempt to separate impacts due to specific localized causes.

We suggest one survey after three to five years be done for transects throughout the harbor. This will provide a better assessment of impacts and a more reasonable chance of isolating the reasons for particular changes.

I. HARBOR-WIDE CIRCULATION STUDY

To do a circulation study that will add any significant knowledge will be extremely complex and costly. We see no reason to simply gather additional data, which is what the study description indicates is required. As described in the Feasibility Study, the circulation is predominantly wind driven. To significantly increase understanding of the circulation will require an extensive field data collection and modeling effort (costs estimated at \$300,000 to \$500,000). To simply do a few more drogue releases and put in a few current meters for a short period would not add any significant knowledge about the circulation, flushing, and dispersion in the harbor. Analysis of the results of the monitoring program are more valuable in terms of understanding the circulation in the harbor than a repetition of previous current studies.